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## Test 1629: John Deere 4555 and 4560 Quadrange Diesel 16-Speed

Nebraska Tractor Test Lab

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# NEBRASKA OECD TRACTOR TEST 1629—SUMMARY 067

## JOHN DEERE 4555 QUADRANGE DIESEL

## ALSO JOHN DEERE 4560 QUADRANGE DIESEL

### 16 SPEED

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed—(PTO speed—998 rpm)</b>					
156.83 (116.95)	2200	9.01 (34.11)	0.397 (0.241)	17.41 (3.43)	
<b>Maximum Power (2 Hours)</b>					
162.53 (121.20)	1950	8.90 (33.67)	0.378 (0.230)	18.27 (3.60)	

#### VARYING POWER AND FUEL CONSUMPTION

156.83 (116.95)	2200	9.01 (34.11)	0.397 (0.241)	17.41 (3.43)	Air temperature
					75°F (24°C)
137.16 (102.28)	2264	8.16 (30.90)	0.411 (0.250)	16.80 (3.31)	Relative humidity
104.51 (77.93)	2299	6.73 (25.47)	0.445 (0.271)	15.53 (3.06)	56%
70.77 (52.77)	2331	5.30 (20.05)	0.517 (0.315)	13.36 (2.63)	Barometer
35.65 (26.59)	2358	3.91 (14.79)	0.757 (0.461)	9.12 (1.80)	28.89" Hg (97.84 kPa)
1.29 (0.96)	2388	2.52 (9.53)	13.501 (8.213)	0.51 (0.10)	

Maximum Torque 505 lb.-ft (684 Nm) at 1451 rpm

Maximum Torque Rise 35%

Torque Rise at 1000 engine rpm 24%

#### DRAWBAR PERFORMANCE FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—8th (C2) Gear</b>									
139.99 (104.39)	7885 (35.07)	6.66 (10.72)	2200	4.36	0.444 (0.270)	15.55 (3.06)	185 (85)	70 (21)	28.90 (97.87)
<b>75% of Pull at Maximum Power—8th (C2) Gear</b>									
110.08 (82.09)	5914 (26.31)	6.98 (11.23)	2275	3.01	0.475 (0.289)	14.53 (2.86)	182 (83)	75 (24)	28.89 (97.83)
<b>50% of Pull at Maximum Power—8th (C2) Gear</b>									
75.39 (56.22)	3947 (17.55)	7.16 (11.53)	2311	2.15	0.542 (0.330)	12.75 (2.51)	180 (82)	75 (24)	28.89 (97.83)
<b>75% of Pull at Reduced Engine Speed—10th (D1) Gear</b>									
110.17 (82.15)	5918 (26.32)	6.98 (11.24)	1782	3.01	0.442 (0.269)	15.65 (3.08)	184 (84)	75 (24)	28.89 (97.83)
<b>50% of Pull at Reduced Engine Speed—10th (D1) Gear</b>									
75.17 (56.05)	3936 (17.51)	7.16 (11.53)	1811	2.15	0.483 (0.294)	14.31 (2.82)	179 (81)	75 (24)	28.89 (97.83)

**Location of Test:** Center for Agricultural Equipment, Lincoln Nebraska 68583-0832, U.S.A.

**Dates of Test:** September-October, 1989

**Manufacturer:** John Deere Waterloo Works, P.O. Box 3500, Waterloo, Iowa 50704

**FUEL OIL and TIME:** Fuel No. 2 Diesel Cetane No. 51.1 Specific gravity converted to 60°/60°F (15°/15°C) 0.8300 Fuel weight 6.910 lbs/gal (0.828 kg/l) Oil SAE 15W40 API service classification CD/SD To motor 4.823 gal (18.257 l) Drained from motor 4.598 gal (17.406 l) Transmission and hydraulic lubricant John Deere HyGard fluid Total time engine was operated 25.0 hours.

**ENGINE:** Make John Deere Diesel Type six cylinder vertical with turbocharger Serial No. \*RG6076T109807\* Crankshaft lengthwise Rated engine speed 2200 Bore and stroke (as specified) 4.56" × 4.75" (115.8 mm × 120.7 mm) Compression ratio 16.0 to 1 Displacement 466 cu in (7634 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements Oil filter one full flow cartridge Oil cooler engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil Fuel filter one paper cartridge and prefilter Muffler vertical Cooling medium temperature control 2 thermostats and variable speed fan.

**ENGINE OPERATING PARAMETERS:** Fuel rate 59.9-65.4 lb/hr (27.2-29.7 kg/hr) High idle 2350-2400 rpm Turbo boost nominal 15-18 psi (103-124 kPa) as measured 17.0 psi (117 kPa).

**CHASSIS:** Type standard Serial No. \*RW4555H001833\* Tread width rear 62.0" (1574 mm) to 115.7" (2938 mm) front 61.0" (1550 mm) to 85.0" (2160 mm) Wheel base 118.5" (3010 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with partial (2) range operator controlled powershift Nominal travel speeds mph (km/h) first 2.11 (3.39) second 2.67 (4.30) third 3.80 (6.12) fourth 4.71 (7.58) fifth 4.83 (7.78) sixth 5.53 (8.90) seventh 5.97 (9.62) eighth 7.02 (11.30) ninth 8.50 (13.69) tenth 8.95 (14.42) eleventh 9.99 (16.08) twelfth 10.80 (17.39) thirteenth 11.37 (18.31) fourteenth 12.68 (20.42) fifteenth 16.19 (26.07) sixteenth 20.56 (33.10) reverse 3.97 (6.39), 5.04 (8.11), 8.87 (14.28), 10.42 (16.78), 11.26 (18.14), 13.23 (21.31) Clutch multiple wet disc hydraulically power actuated by foot pedal Brakes multiple wet disc hydraulically power actuated by two foot pedals which can be locked together Steering hydrostatic Power take-off 998 rpm at 2200 engine rpm Unladen tractor mass 15840 lb (7185 kg).

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**DRAWBAR PERFORMANCE AT 1950 RPM  
MAXIMUM POWER IN SELECTED GEARS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
3rd (A3) Gear									
115.40 (86.05)	13035 (57.98)	3.32 (5.34)	2264	14.35	0.509 (0.310)	13.58 (2.67)	182 (83)	57 (14)	28.92 (97.93)
4th (B1) Gear									
136.10 (101.49)	11719 (52.13)	4.36 (7.01)	2198	6.64	0.458 (0.279)	15.09 (2.97)	183 (84)	64 (18)	28.90 (97.87)
5th (A4) Gear									
137.16 (102.28)	11954 (53.17)	4.30 (6.92)	2151	7.96	0.452 (0.275)	15.28 (3.01)	184 (84)	66 (19)	28.90 (97.87)
6th (C1) Gear									
138.57 (103.33)	11077 (49.27)	4.69 (7.55)	2020	6.79	0.447 (0.272)	15.46 (3.05)	187 (86)	67 (19)	28.90 (97.87)
7th (B2) Gear									
142.01 (105.90)	10866 (48.33)	4.90 (7.89)	1950	6.71	0.434 (0.264)	15.93 (3.14)	188 (86)	69 (21)	28.90 (97.87)
8th (C2) Gear									
143.04 (106.67)	9161 (40.75)	5.86 (9.42)	1952	5.27	0.430 (0.262)	16.07 (3.16)	187 (86)	69 (21)	28.90 (97.87)
9th (B3) Gear									
141.02 (105.16)	7373 (32.79)	7.17 (11.54)	1948	3.94	0.435 (0.265)	15.88 (3.13)	187 (86)	70 (21)	28.90 (97.87)
10th (D1) Gear									
141.13 (105.24)	6985 (31.07)	7.58 (12.19)	1949	3.77	0.437 (0.266)	15.83 (3.12)	187 (86)	72 (22)	28.90 (97.87)
11th (C3) Gear									
141.17 (105.27)	6235 (27.73)	8.49 (13.66)	1949	3.27	0.435 (0.265)	15.88 (3.13)	187 (86)	72 (22)	28.90 (97.87)

**DRAWBAR PERFORMANCE AT 1950 RPM  
MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)	
1st (A1) Gear									
89.02 (66.38)	17784 (79.10)	1.88 (3.02)	2293	13.70	0.541 (0.329)	12.77 (2.52)	180 (82)	56 (13)	29.08 (98.48)
2nd (A2) Gear									
110.66 (82.52)	17681 (78.65)	2.35 (3.78)	2269	14.17	0.510 (0.310)	13.56 (2.67)	181 (83)	53 (12)	29.08 (98.48)
3rd (A3) Gear									
140.21 (104.56)	15808 (70.32)	3.33 (5.35)	2077	6.59	0.445 (0.270)	15.54 (3.06)	185 (85)	60 (16)	29.08 (98.48)
4th (B1) Gear									
142.79 (106.48)	13441 (59.79)	3.98 (6.41)	1979	5.14	0.433 (0.263)	15.95 (3.14)	187 (86)	64 (18)	29.08 (98.48)
5th (A4) Gear									
144.37 (107.66)	13440 (59.78)	4.03 (6.48)	1951	5.14	0.426 (0.259)	16.23 (3.20)	187 (86)	65 (18)	29.08 (98.48)
6th (C1) Gear									
142.36 (106.16)	11460 (50.97)	4.66 (7.50)	1953	4.23	0.434 (0.264)	15.93 (3.14)	187 (86)	66 (19)	29.09 (98.51)
7th (B2) Gear									
146.25 (109.06)	10897 (48.47)	5.03 (8.10)	1947	4.06	0.422 (0.256)	16.39 (3.23)	188 (86)	67 (19)	29.09 (98.51)
8th (C2) Gear									
145.89 (108.79)	9159 (40.74)	5.97 (9.61)	1953	3.39	0.419 (0.255)	16.48 (3.25)	188 (87)	71 (22)	29.09 (98.51)
9th (B3) Gear									
142.95 (106.60)	7370 (32.78)	7.27 (11.71)	1949	2.70	0.430 (0.261)	16.07 (3.17)	189 (87)	73 (23)	29.07 (98.44)
10th (D1) Gear									
141.94 (105.85)	6945 (30.89)	7.66 (12.34)	1948	2.53	0.431 (0.262)	16.05 (3.16)	189 (87)	74 (23)	29.06 (98.41)
11th (C3) Gear									
142.39 (106.18)	6219 (27.66)	8.59 (13.82)	1950	2.27	0.433 (0.263)	15.96 (3.14)	189 (87)	74 (23)	29.05 (98.37)

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests, the fuel temperature at the injection pump return was maintained at 125° F (52° C). This tractor is equipped with a variable speed cooling fan. Since engine power is influenced by fan speed, all power tests were conducted at approximately the same ambient air temperatures. This tractor did not meet manufacturers 3 point lift capacity claim of 8870 lb (4023 kg) or 9710 lb (4404 kg) with lift assist cylinder. The performance figures on this summary were taken from a test conducted under the OECD restricted standard test code procedure.

Report reissued. Supplemental sales permit for John Deere 4560 Quadrange Diesel, November, 1991.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1629**, Summary 067, December 22, 1989.

LOUIS I. LEVITICUS  
Engineer-in-Charge

K. VON BARGEN  
R. D. GRISSO  
L. L. BASHFORD

Board of Tractor Test Engineers

**DRAWBAR PERFORMANCE AT 2200 RPM**  
**MAXIMUM POWER IN SELECTED GEARS—BALLASTED TRACTOR**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>2nd (A2) Gear</b>									
110.49 (82.39)	17774 (79.06)	2.33 (3.75)	2268	14.71	0.511 (0.311)	13.51 (2.66)	181 (83)	51 (11)	29.08 (98.48)
<b>3rd (A3) Gear</b>									
138.94 (103.61)	14637 (65.11)	3.56 (5.73)	2198	5.55	0.449 (0.273)	15.39 (3.03)	184 (84)	58 (14)	29.08 (98.48)
<b>4th (B1) Gear</b>									
139.83 (104.27)	11725 (52.16)	4.47 (7.20)	2202	4.31	0.444 (0.270)	15.56 (3.06)	186 (85)	63 (17)	29.08 (98.48)
<b>5th (A4) Gear</b>									
140.72 (104.94)	11488 (51.10)	4.59 (7.39)	2203	4.23	0.440 (0.267)	15.72 (3.10)	185 (85)	64 (18)	29.08 (98.48)
<b>6th (C1) Gear</b>									
139.96 (104.37)	9932 (44.18)	5.28 (8.50)	2200	3.56	0.445 (0.270)	15.54 (3.06)	186 (85)	65 (18)	29.08 (98.48)
<b>7th (B2) Gear</b>									
141.77 (105.72)	9291 (41.33)	5.72 (9.21)	2199	3.39	0.441 (0.268)	15.66 (3.09)	186 (86)	68 (20)	29.09 (98.51)
<b>8th (C2) Gear</b>									
141.47 (105.49)	7848 (34.91)	6.76 (10.88)	2198	2.79	0.439 (0.267)	15.74 (3.10)	186 (86)	70 (21)	29.09 (98.51)
<b>9th (B3) Gear</b>									
138.52 (103.29)	6309 (28.06)	8.23 (13.25)	2198	2.27	0.449 (0.273)	15.40 (3.03)	187 (86)	72 (22)	29.08 (98.48)

<b>TRACTOR SOUND LEVEL WITH CAB</b>	<b>dB(A)</b>
Gear closest to 4.7 mph (7.5 km/h)—4th (B1) Gear	76.0
Maximum sound level	76.0
Transport speed—no load—16th (D4) Gear	77.0
Bystander in 16th (D4) Gear	85.0

**LUGGING ABILITY IN 7th (B2) GEAR**

Crankshaft Speed rpm	2199	1981	1764	1540	1323	1101
Pull—lbs (kN)	9291 (41.33)	10682 (47.52)	11760 (52.31)	12708 (56.53)	12640 (56.23)	12244 (54.46)
Increase in Pull %	0	15	27	37	36	32
Power—Hp (kW)	141.77 (105.72)	145.91 (108.80)	142.40 (106.18)	133.64 (99.66)	114.29 (85.23)	92.24 (68.78)
Speed—Mph (km/h)	5.72 (9.21)	5.12 (8.24)	4.54 (7.31)	3.94 (6.35)	3.39 (5.46)	2.82 (4.55)
Slip %	3.39	3.89	4.56	4.89	4.73	4.73

**THREE POINT HITCH PERFORMANCE (SAE Static Test)**

Observed Maximum Pressure psi. (bar)	2580 (178)				
Location	remote outlet				
Hydraulic oil temperature °F(°C)	138 (59)				
Location	transmission sump				
Category	III				
Quick attach	Yes				
Hitch point distance to ground level in. (mm)	9.0 (229)	16.0 (406)	25.0 (635)	33.0 (838)	40.0 (1016)
Lift force on frame lb. " " " " " " (kN)	8700 (38.7)	9228 (41.0)	9432 (42.0)	8944 (39.8)	8283 (36.8)
with 1-44 mm. lift assist cylinder					
Hitch point distance to ground level in. (mm)	9.0 (229)	16.0 (406)	25.0 (635)	33.0 (838)	40.0 (1016)
Lift force on frame lb. " " " " " " (kN)	9860 (43.9)	10570 (47.0)	10854 (48.3)	10224 (45.5)	9411 (41.9)
with 1-55 mm. lift assist cylinder					
Hitch point distance to ground level in. (mm)	9.0 (229)	16.0 (406)	25.0 (635)	33.0 (838)	40.0 (1016)
Lift force on frame lb. " " " " " " (kN)	10518 (46.8)	11434 (50.9)	11576 (51.5)	10737 (47.8)	10041 (44.7)

## TIRES AND WEIGHT

	With Ballast	Without Ballast
<b>Rear Tires</b> —No., size, ply & psi (kPa)	Four 18.4R42; **, 16 (110)	Two 18.4R42; **, 22 (150)
<b>Ballast</b> —Duals (total)	1710 lb (776 kg)	None
—Cast Iron (total)	1000 lb (454 kg)	None
<b>Front Tires</b> —No., size, ply & psi (kPa)	Two 14L-16.1; 10; 44 (305)	Two 14L-16.1; 10; 44 (305)
<b>Ballast</b> —Liquid (total)	None	None
—Test Equip (total)	195 lb (88 kg)	None
<b>Height of Drawbar</b>	24 in (610 mm)	23.5 in (595 mm)
<b>Static Weight</b> —Rear	13930 lb (6319 kg)	11020 lb (4999 kg)
—Front	4815 lb (2184 kg)	4820 lb (2186 kg)
—Total	18745 lb (8503 kg)	15840 lb (7185 kg)

## THREE POINT HITCH PERFORMANCE (OECD Static Test)

CATEGORY: III

Quick Attach: Yes

Maximum Force Exerted Through Whole Range:

5821 lbs (25.9 kN)

\*6614 lbs (29.4 kN)

\*\*7057 lbs (31.4 kN)

NA

i) Opening pressure of relief valve:

Sustained pressure with pump stalled:

2580 psi (178 Bar)

ii) Pump delivery rate at minimum pressure:

35.3 GPM (133.6 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

33.9 GPM (128.3 l/min)

Delivery pressure:

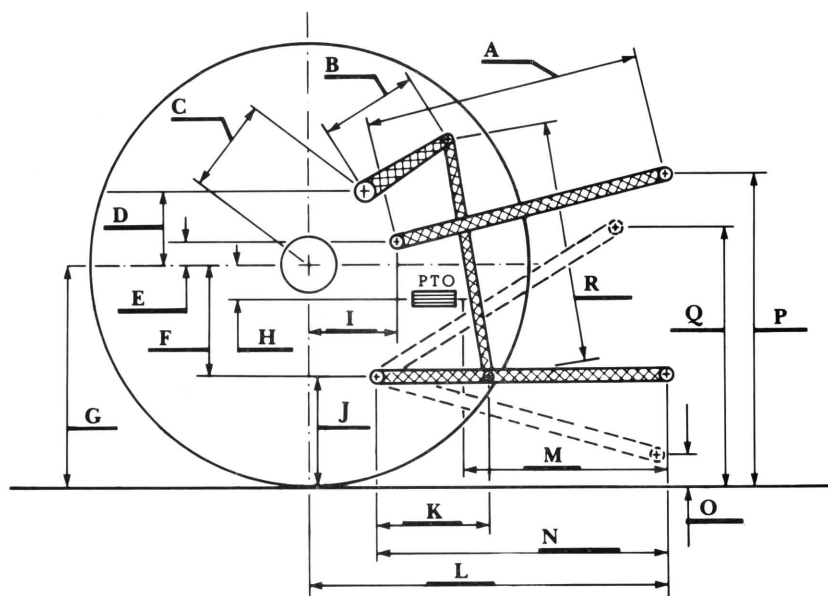
1750 psi (121 Bar)

Power:

34.6 Hp (25.8 kW)

\*with 44 mm lift assist cylinder

\*\*with 55 mm lift assist cylinder



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	28.1	714
B	18.4	468
C	12.9	327
D	12.9	327
E	6.8	172
F	13.0	330
G	35.1	892
H	7.0	177
I	15.1	384
J	22.1	562
K	28.2	716
L	44.3	1124
L'	49.3	1251
M	22.3	565
N	38.1	968
O	9.1	231
P	44.1	1121
Q	41.5	1053
R	37.3	946

L' to end of Quick Attach



John Deere 4555 Quadrange Diesel

Agricultural Research Division  
Institute of Agriculture and Natural Resources  
University of Nebraska—Lincoln  
Darrell Nelson, Dean and Director